



A CASE REPORT ON AN ATYPICAL UTERINE RUPTURE – RUPTURE DURING MISCARRIAGE MANAGEMENT

Obstetrics & Gynaecology

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ABSTRACT

Background: Uterine rupture is a severe obstetric complication traditionally associated with a past history of caesarean section or other factors causing uterine scarring. However, instances of atypical uterine rupture in patients have been reported. This case report presents an atypical instance of uterine rupture in a patient with no known risk factors, emphasising the need for high suspicion for uterine rupture even in the absence of risk factors. **Case Presentation:** The case discusses a gravida 3, para 2 female with no significant history, except for treatment for cervical intraepithelial neoplasia. No history of caesarean section or uterine scarring. Presented with light vaginal bleeding and later diagnosed with a miscarriage at 20+1 weeks of gestation. Managed with misoprostol per trust guidelines, the patient developed severe pain, signs of sepsis, and shock. An ultrasound revealed a heterogeneous mass in the lower uterine segment and free fluid in the pelvis. A CT scan confirmed a ruptured uterus with the foetus and placenta lying anteriorly and hemoperitoneum present. A laparotomy was performed under general anaesthesia and the uterus was repaired. Post-operatively, the patient developed ileus and a pulmonary embolism, which were treated, leading to gradual recovery. **Conclusion:** This atypical case of uterine rupture highlights the need to maintain a high level of suspicion for uterine rupture, even in the absence of traditional risk factors. It also underscores the importance of careful patient management during labour induction with misoprostol, especially when complications arise. This case serves as a reminder to clinicians to consider all possible diagnoses when a patient's condition deteriorates, even in the absence of conventional risk factors. More research is needed on the use of labour-inducing drugs, particularly misoprostol, in the management of intrauterine foetal death.

KEYWORDS

INTRODUCTION

A uterine rupture represents a severe obstetric complication, traditionally linked with a history of caesarean section or other factors causing uterine scarring (Finnsdottir et al., 2022). It refers to a condition where the uterus tears during pregnancy or labour (Hofmeyr et al., 2005). A uterine rupture can result in foetal loss and maternal loss due to haemorrhage (Savukyne et al., 2020).

A typical presentation includes a history of predisposing factors, and symptoms such as an acute onset of abdominal pain, per vaginal bleed, and abnormalities of the foetal heart rate (Cеровић-Popović & Sparić, 2023; Savukyne et al., 2020). Rupture risk increases with obstructed labour, oxytocin administration, misoprostol-induced labour, and intrauterine manipulation (Mohammed, 2023).

This report presents an atypical case of uterine rupture in a patient without any known predisposing factors. This case emphasises the importance of maintaining a high index of suspicion for uterine rupture, even in the absence of risk factors. Through understanding and learning from such uncommon presentations, healthcare professionals can better diagnose and manage this life-threatening condition.

2. Case Description

The subject of this case is a gravida 3, para 2 female with no significant medical history, except for a large loop excision of the transformation zone (LLETZ) treatment for cervical intraepithelial neoplasia (CIN). There was no previous history of caesarean section or any scarring of the uterus. The patient presented initially with a history of light vaginal bleeding, similar to a menstrual period, which was initially managed by a midwife. The specifics of this consultation were not documented.

Three months post-initial consultation, the patient presented with vaginal bleeding and mild cramping. An ultrasound scan (USS) revealed an absent foetal heart rate and lack of foetal movement, leading to a diagnosis of miscarriage at 20+1 weeks of gestation. Medical management with misoprostol was chosen for this patient as per trust guidelines. However, before the administration of misoprostol, the patient began experiencing contractions and passing clots.

A half dose of misoprostol was then administered once the frequency

of her contractions reduced. Four hours post-administration, the patient reported severe pain and was given 10 mg of intramuscular morphine, followed by an additional 5 mg per patient request.

About 11 hours post-misoprostol administration, the patient showed signs of distress, including exhaustion, vomiting, dehydration, and inability to urinate. The patient had a high heart rate and low urine output. An intravenous line was inserted, and Hartman's solution administered. Afterwards, it was apparent that the patient became septic, including tachycardia, tachypnoea, confusion, vomiting, oliguria, and a raised white cell count based on blood collected from the cannula during insertion. This was recognised, misoprostol was ceased, and the sepsis bundle was initiated, including blood tests, catheter insertion, IV antibiotics, and IV fluids. The patient's condition continued to deteriorate, with increased temperature, haematuria, and positive urine dipstick for leukocytes and nitrates.

Post-misoprostol cessation, the patient developed abdominal pain and haematuria. 9 hours following the initiation of the sepsis bundle, a physical examination revealed signs of shock and a distended abdomen. An emergency CT scan was ordered at this point to assess uterine integrity and to guide further treatment. An ultrasound scan of the kidney, ureters, and bladder was planned, with a potential switch of antibiotic to ceftriaxone and metronidazole after discussion with the microbiologist.

The USS results showed a 9.8 mm thickness of the upper endometrium and a heterogeneous mass in the lower uterine segment with free fluid in the pelvis. Pelvic examination was halted due to pain, pending CT scan results. The patient's haemoglobin levels decreased while awaiting results, the consultant decided on an examination under anaesthesia with suspicion of uterine rupture. The plan was to perform a laparotomy and remove the foetus, with or without evacuation.

An urgent verbal report of the CT scan confirmed a ruptured uterus, with the foetus and placenta lying anteriorly and hemoperitoneum present. The bladder was intact with a Foley's catheter in situ. Major postpartum haemorrhage (PPH) protocol was initiated, and a prophylactic maternal obstetric haemorrhage was declared. A laparotomy was performed under general anaesthesia, uterus repaired and closed in layers with effective haemostasis. The baby was

delivered at 20+5 weeks of gestation during this process. Post-operatively, the patient developed ileus and suffered a pulmonary embolism. Both conditions were treated, enabling the patient's gradual recovery. During this recovery process, the patient and their partner were given an opportunity to meet and spend time with their baby (deceased foetus).

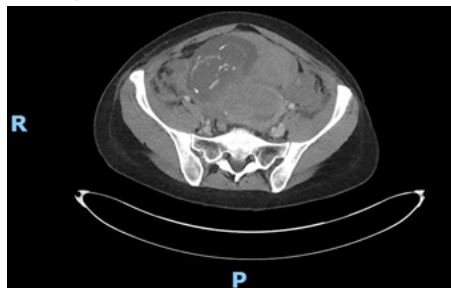


Figure 1 : CT Scan Of Pelvis

3. DISCUSSION

Uterine rupture is a serious medical condition. While rare, especially in uteri without scars, this case was unusual due to the absence of familiar risk factors such as previous caesarean sections or uterine manipulations. The patient's significant medical history included only a LLETZ treatment for CIN.

We theorise that the fibrosis of the cervix following the LLETZ treatment, combined with the use of misoprostol to induce labour, may have led to an increase in intrauterine pressure resulting in the rupture. This theory requires further research for confirmation.

Typically, women naturally go into labour and deliver within three weeks following an Intrauterine Foetal Death (IUFD) (De León et al., 2007). However, labour is often induced, usually using oral misoprostol. Standard guidelines for the dosage and frequency of misoprostol use, particularly for pregnancies in the second and third trimesters, do not exist (Elati & Weeks, 2009). The risk of disseminated intravascular coagulation complicates IUFD management, as it can be life-threatening for the mother (Muin et al., 2018).

In this case, the patient was given misoprostol after her contractions slowed down. Misoprostol was stopped 19 hours later when the patient showed signs of exhaustion, distress, and sepsis. In retrospect, discontinuing misoprostol earlier might have prevented the uterine rupture. Additionally, 50% of women with IUFD will have vaginal delivery within 12 hours and 83% within 24 hours, so this should be a warning sign (Pongsatha et al., 2022).

The potential uterine rupture was identified after the patient's abdomen became distended and tender. Uterine rupture was not initially considered due to its rarity and the absence of typical risk factors such as uterine scarring. However, the early signs of sepsis during induction should have raised concern, considering most women can undergo labour induction without complications.

The decision to perform a laparotomy was slightly delayed, partly due to misinterpreted USS results, which showed a heterogeneous mass in the lower uterine segment rather than in front of the uterus. However, the patient's decreasing haemoglobin levels were a red flag for possible haemorrhage. An urgent CT scan confirmed the ruptured uterus, leading to a laparotomy. This case emphasises the need for vigilance for uterine rupture, even in the absence of usual risk factors.

4. CONCLUSION

This case report highlights the importance of maintaining a high index of suspicion for uterine rupture, even in patients without traditional risk factors. It further emphasises the need for careful assessment and management of patients undergoing misoprostol-induced labour, especially when complications such as sepsis arise. Clinicians should be vigilant and consider alternative diagnoses when patients' conditions deteriorate, despite the absence of common risk factors.

Attention to details in patient symptoms, careful interpretation of diagnostic imaging, and timely intervention can prevent severe complications and improve patient outcomes. More research is needed on the use of misoprostol and other labour-inducing drugs in the

management of intrauterine foetal death, particularly regarding dosage guidelines and potential complications.

Finally, this case underscores the need for effective communication and support for patients and their families during such traumatic experiences. Healthcare professionals should provide clear, compassionate explanations, and offer emotional support during the grieving process to help patients and their families cope with the loss and navigate the recovery process.

5. Patient Perspective

In this final section, we present the patient's account of her medical journey, which was obtained from an interview. She recalls the initial signs of vaginal bleeding and the subsequent diagnosis of a miscarriage as a time of intense physical pain and devastation. She referred to the contractions as "torture" and found the overall experience confusing and frightening, as it was different from her previous experiences of labour.

She distinctly recalls the pain, discomfort, and fear of not knowing what was happening as her condition worsened. As misoprostol failed, she recalls being told by the consultant that a procedure may be needed to remove the baby parts. This news distressed her and her partner, as they hoped for the baby to be removed intact. However, as she grew more unwell and a uterine rupture was suspected, surgery became necessary. The rapid deterioration of her condition, the urgent need for a laparotomy, and the fear of death overwhelmed her. Additionally, her husband's fear of being the only one to return from the hospital underscores the impact on loved ones.

She felt relief waking up from the surgery, knowing it had been successful. She also felt relief that her baby was taken out in one piece during the procedure and that they got to spend time with her. She believes this assisted her husband with his grief, but she could not process her own grief until three weeks after the operation as she was coping with her poor health. This baby was supposed to be her first girl, following two boys, and she felt this pregnancy was special.

Despite the traumatic experience, she found comfort in spending time with her baby. She appreciated the compassionate care provided by the medical team, especially the midwives, and efforts to preserve her baby's memory through handprints, footprints, and a memory box.

Her recovery period was marked by physical discomfort, night sweats, anxiety, and flashbacks. Today she still does not recall some of the memories from this time period and believes it may be her body blocking out the bad memories. Despite these challenges, she remained positive, focusing on her other children and finding solace in simple activities like spending time with her family. She advises other women facing similar situations, such as intrauterine foetal death, to try to stay positive, assuring them that "it does get better...you still got those memories." She found the bereavement team particularly helpful.

Reflecting on her experience, she believes that her healthcare team did everything possible to provide the best care under the circumstances. Her key message is to "think about rupture, even without a previous caesarean section".

Author Contribution

- **Mariyam Zaina Mohamed Sohil:** Drafted the manuscript and performed the literature search (First Author)
- **Ayesha Fatima and Swasti Jain:** Contributed to the conception of the case and provided clinical care
- **P. Jamjute:** Supervised the work and served as the operating surgeon

Funding

No external funding was obtained in the development of this case report.

Patient Consent

Consent was obtained from the patient to produce a written review for the purposes of future learning.

Conflicts Of Interest

The authors declare that they have no competing interests.

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